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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/575,983	04/17/2006	Matthew Glen Wheeler	35010148US	8458

32827 7590 12/08/2009

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EXAMINER	
NGHIEM, MICHAEL P	
ART UNIT	PAPER NUMBER
2863	

MAIL DATE	DELIVERY MODE
12/08/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/575,983	WHEELER ET AL.	
	Examiner	Art Unit	
	MICHAEL P. NGHIEM	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 September 2009 and 06 August 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-16* is/are allowed.

6)☒ Claim(s) *17-21,25 and 27-29* is/are rejected.

7)☒ Claim(s) *22-24,26 and 30-33* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The Amendment filed on August 6, 2009 has been considered.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 22, 2009 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 17-21, 25, and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patten (US 6,092,409) in view of Stack et al. (US 2006/0265148) and Reider

("Model-Based Interpretation and Realization of a Coriolis Mass Flow Meter Having a Straight Measuring Tube").

Regarding claim 17, Patten et al. discloses a system for validating a flow calibration factor of a flow meter (Abstract, lines 1-2), comprising:

- means (comprising processor 201, column 6, lines 51-59) for determining an initial oscillation period (step 901) of a component of said flow meter (via 901);

- means (comprising processor 201, Fig. 2) for determining a current oscillation period of said component (via 403);

- means (comprising processor 201, Fig. 2) for comparing said initial oscillation period to said current oscillation period (step 902);

- means (comprising processor 201, Fig. 2) for detecting a calibration error condition responsive to comparing said initial oscillation period to said current oscillation (column 5, lines 9-12).

Regarding claim 18, Patten et al. discloses means for signaling said calibration error condition (step 904).

Regarding claim 19, Patten et al. discloses means for correcting said flow calibration factor responsive to said calibration error condition being detected (column 10, lines 28-30).

Regarding claim 20, Patten et al. discloses means for solving a single degree of freedom model (measurement of oscillation, column 1, lines 34-35, using sensors, column 1, lines 42-46).

Regarding claim 21, Patten et al. discloses said means for solving a single degree of freedom model comprises means for applying a known force to said flow meter component (column 1, lines 34-35); measuring a resultant deflection of said flow meter component (sensors measure motion, column 1, lines 42-44); and determining said oscillation period responsive to said force and deflection (column 2, lines 33-35).

Regarding claim 25, Patten et al. discloses said means for solving a multiple degree of freedom model (determine period of oscillation based on flow calibration factor and density, column 2, lines 58-62).

Regarding claim 27, Patten et al. discloses said means for correcting said flow calibration error corrects using coefficient estimation techniques (column 9, lines 37-41).

Regarding claim 28, Patten et al. discloses said means for correcting said flow calibration error corrects using multi-fluid calibration techniques (column 10, lines 28-30; Fig. 3).

Regarding claim 29, Patten et al. discloses said means for correcting said flow calibration error corrects using trending techniques (using proportion of change, column 10, lines 28-30).

However, regarding claim 17, Patten does not disclose determining/comparing the flexural stiffness of the flowmeter component to detect a calibration error condition.

Nevertheless, as discussed above, Patten discloses determining the oscillation periods (or displacements) of the flow tube (see column 5, lines 2-12) to detect a calibration error condition (column 5, lines 8-12).

Stack et al. and Reider suggest another way of detecting a calibration error condition, however, using the stiffness of the flow tube.

Stack et al. discloses the flow calibration factor depends on the stiffness of the flow tube (paragraph 0009, lines 15-17).

Reider discloses a relationship between the resilience (degree of stiffness) and the Eigen frequency (of oscillation) (see equation 3.114, page 73 of English translation) (see also Eigen frequency, equation 3.112, page 72 of English translation).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to determine/compare the flexural stiffness of the flowmeter component as suggested by Stack et al. and Reider for the purpose of detecting a calibration error condition.

Allowable Subject Matter

Claims 22-24, 26, and 30-33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 1-16 are allowed.

Reasons For Allowance

The **combination** as claimed wherein a method and system for validating a flow calibration factor of a flow meter comprising determining a current flexural stiffness of a flow meter component from a flow meter vibrational displacement produced in response to application of a predetermined force to one or more flow tubes of the flow meter (claim 1) or said single degree of freedom model is solved using a method comprising means for determining a receptance transfer function, calculating an inverse receptance frequency response, and determining said flexural stiffnesses

responsive to said frequency response (claim 22) or said single degree of freedom model is solved using a method comprising means for identifying constants, applying a transfer function model to a complex frequency response, converting said transfer function from a mobility form to a response form, extracting modal parameters from said transfer function, and calculating flexural stiffnesses responsive to said modal parameters (claim 23) or means for generating a response model of said flow meter structure, converting said response model to a modal model, converting said modal model into a spatial model, and determining said flexural stiffness from said spatial model (claim 26) is not disclosed, suggested, or made obvious by the prior art of record.

Response to Arguments

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Nghiem whose telephone number is (571) 272-2277. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Michael P. Nghiem/

Primary Examiner, GAU 2863

December 4, 2009